

# Solubility of IFN-Beta-1b in Sodium Chloride Solutions

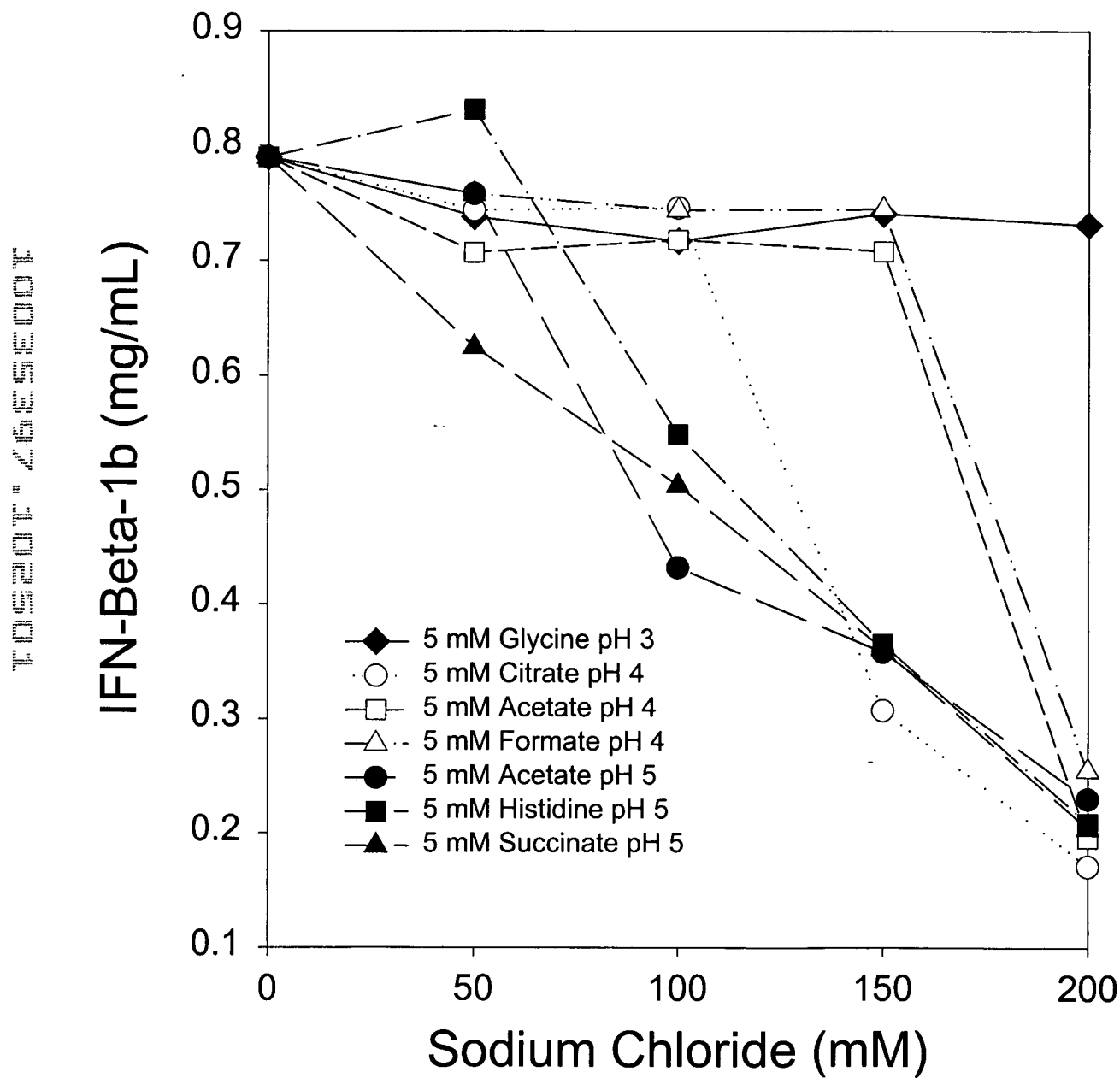


Figure 1

# IFN-Beta-1b Solubility in Low-Ionic-Strength Formulations

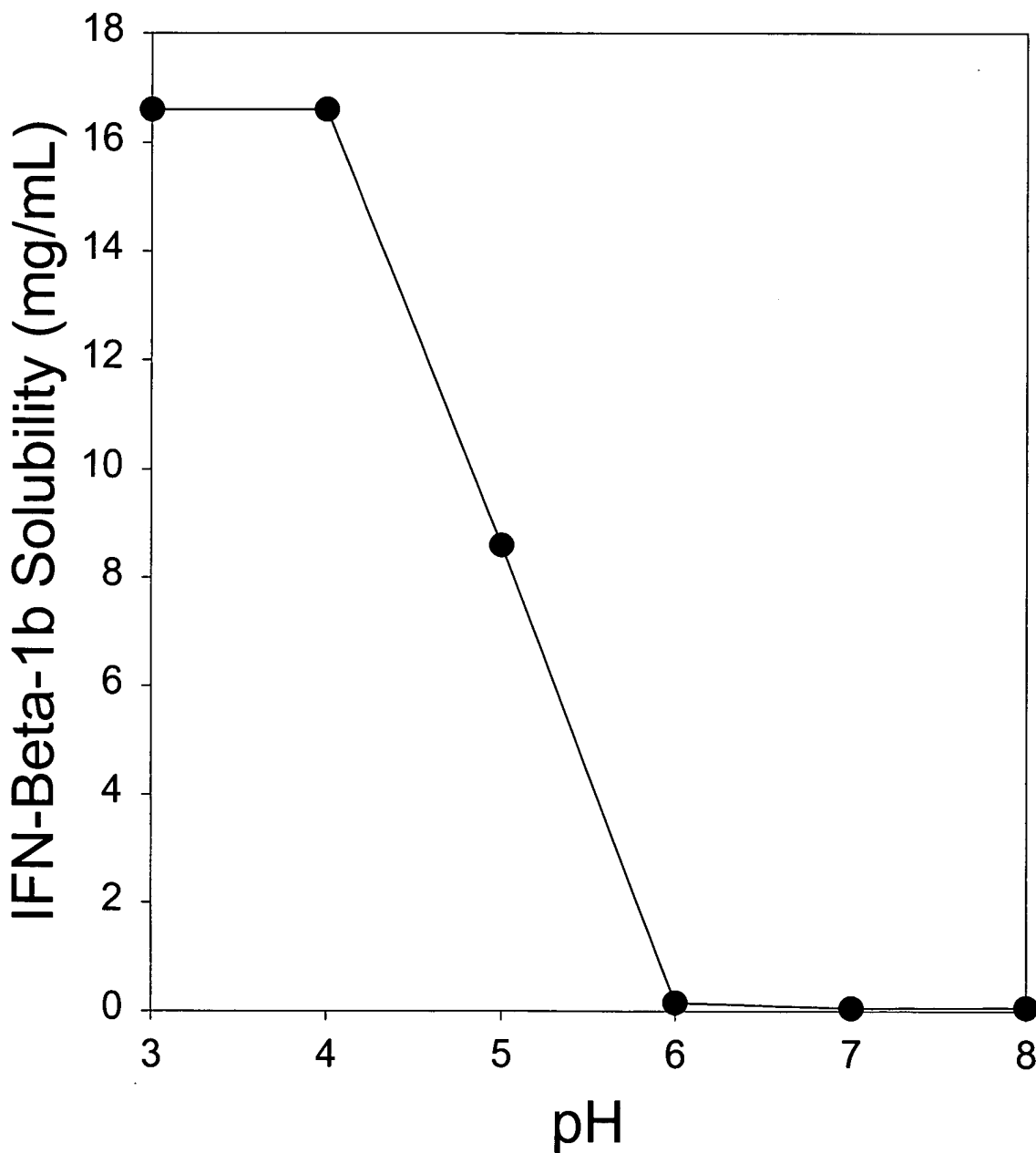


Figure 2

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

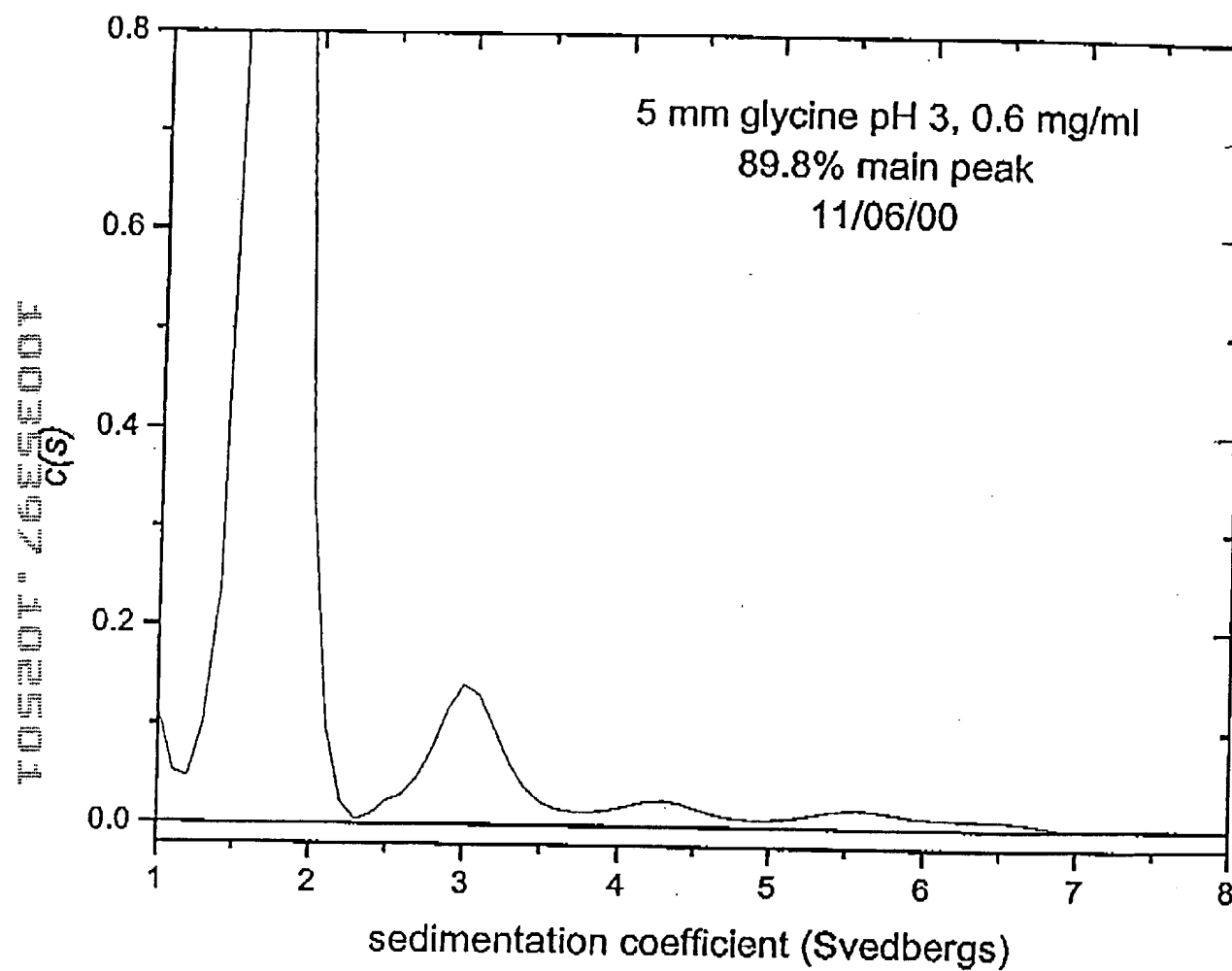


Figure 3

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

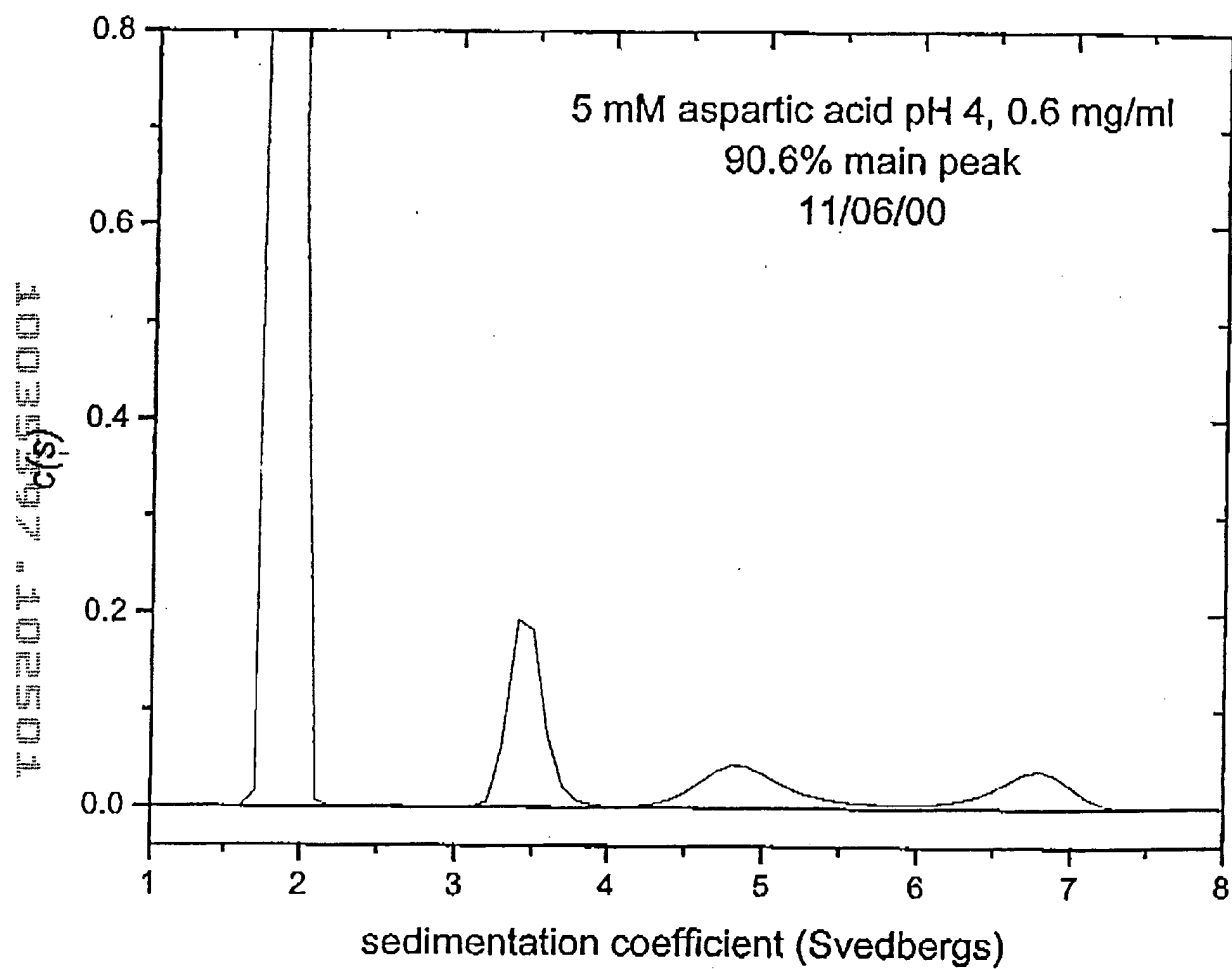


Figure 4

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

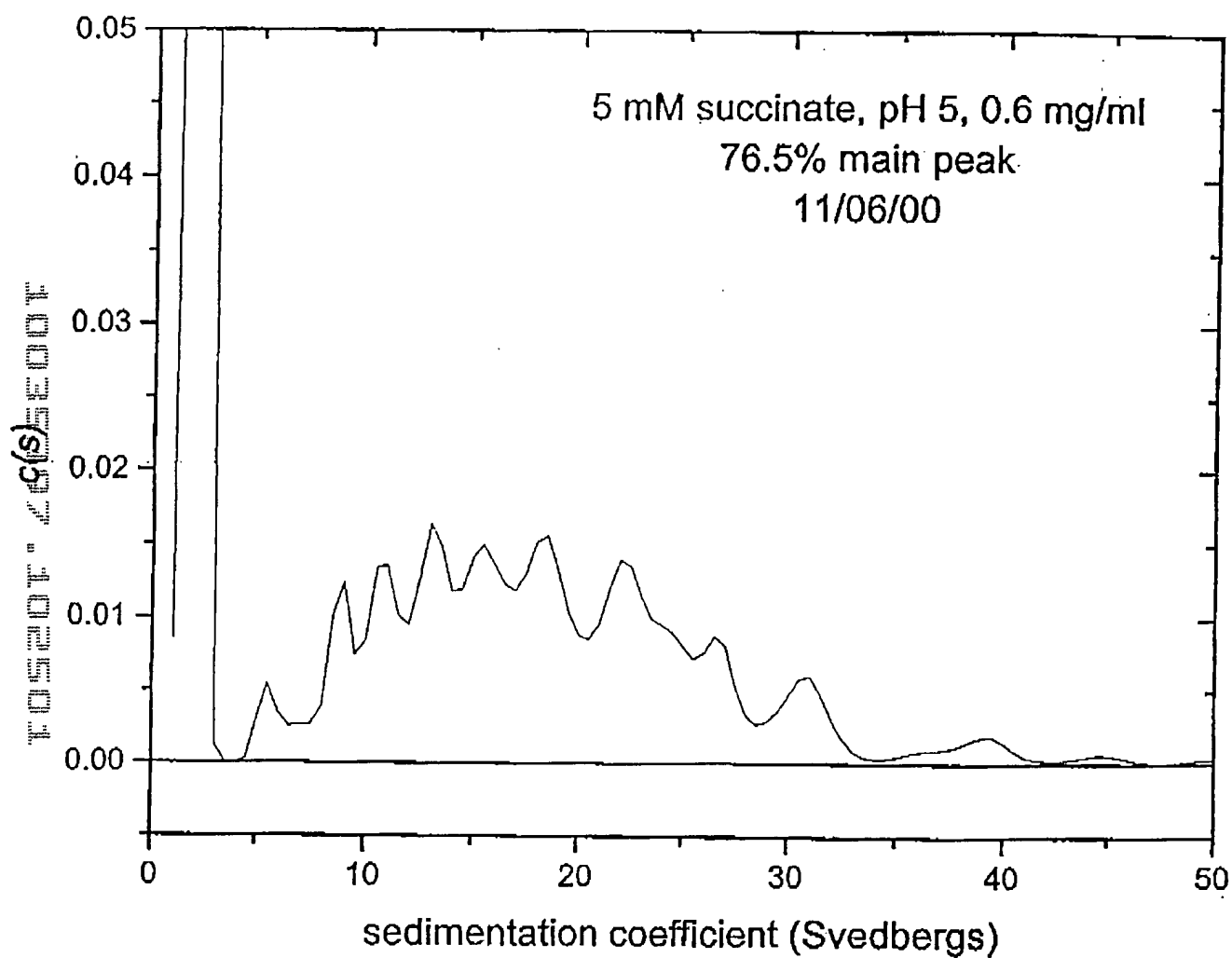


Figure 5

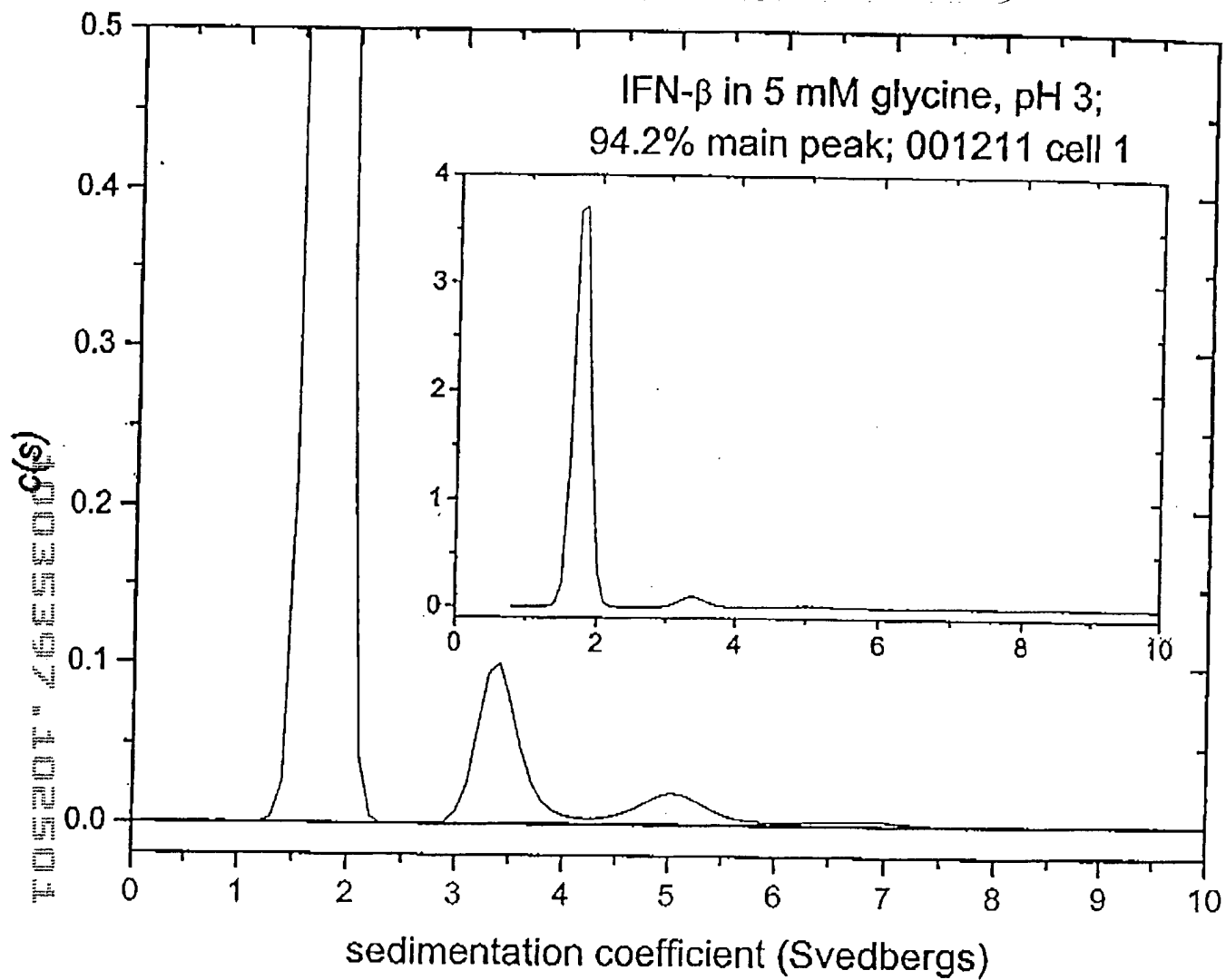


Figure 6

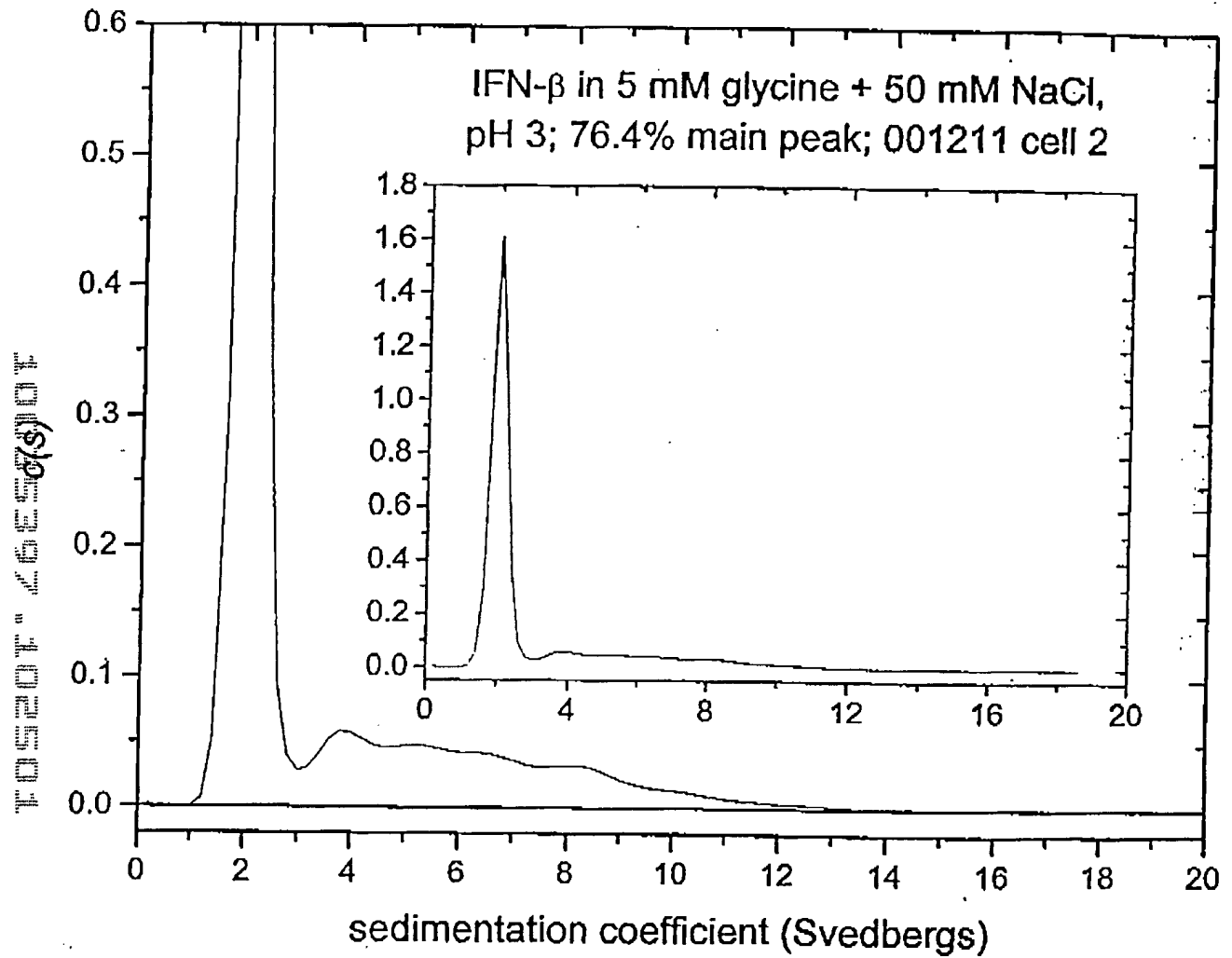


Figure 7

Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

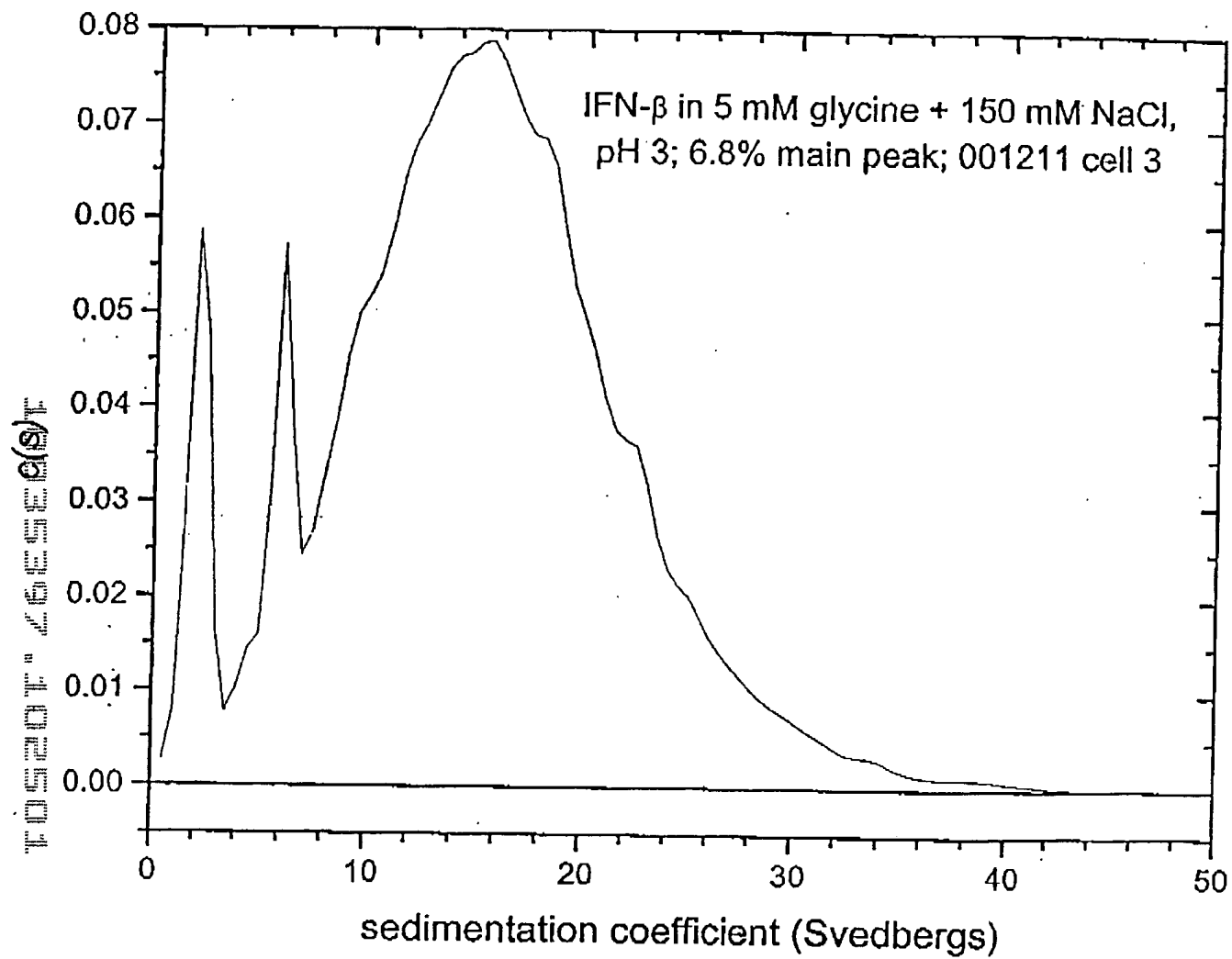


Figure 8



Title: HSA-FREE FORMULATIONS OF INTERFERON-BETA  
Inventor(s): Bret A. Shirley, Minna Choe, Melanie Teller, Susan Babuka  
Application No: Not yet assigned  
Atty Dkt No: PP17201.003 (35784/240412)

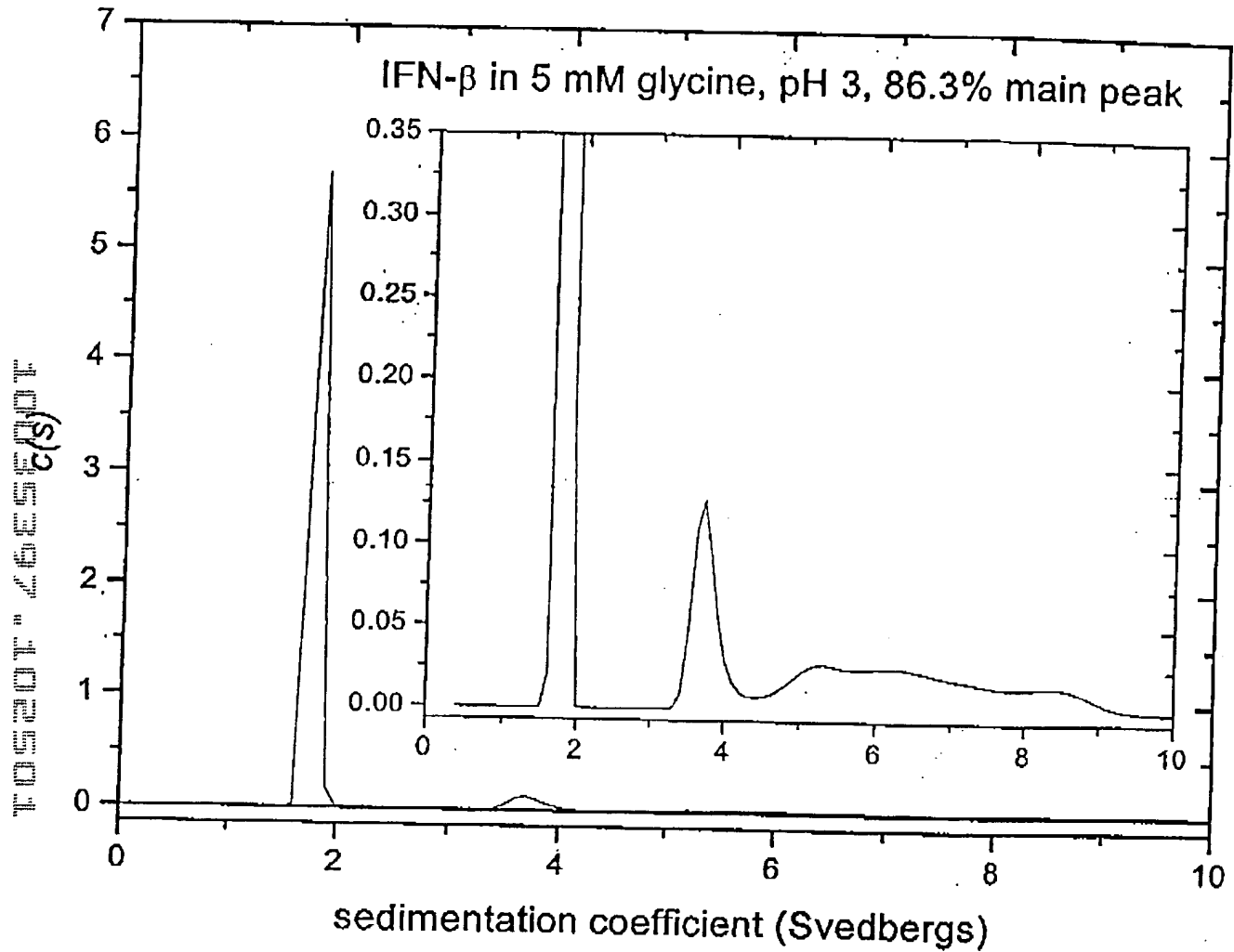


Figure 9

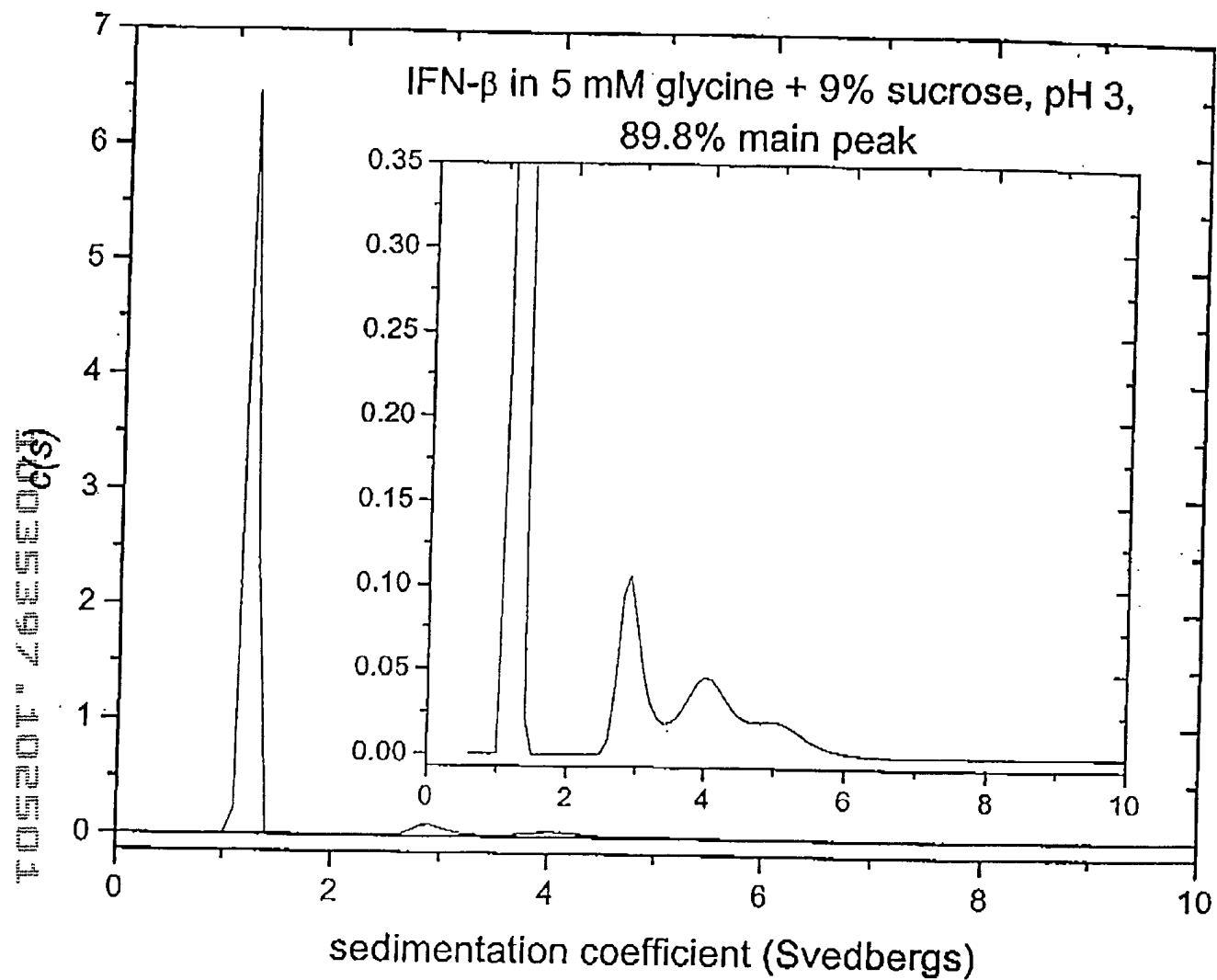


Figure 10

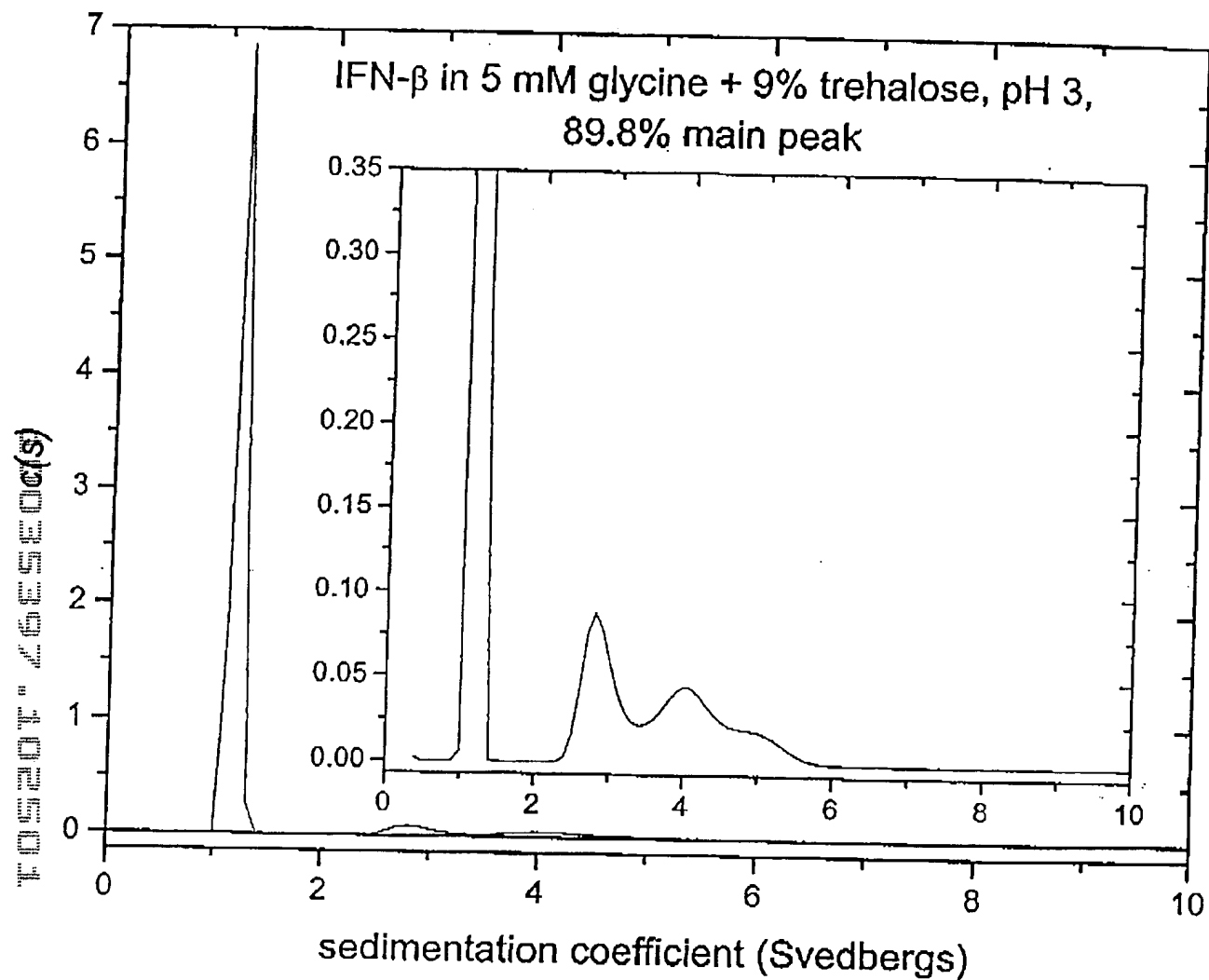


Figure 11

# IFN-Beta-1b

## Lyophilized Formulations

### % of Initial Concentration

### UV Absorption

### 40°C

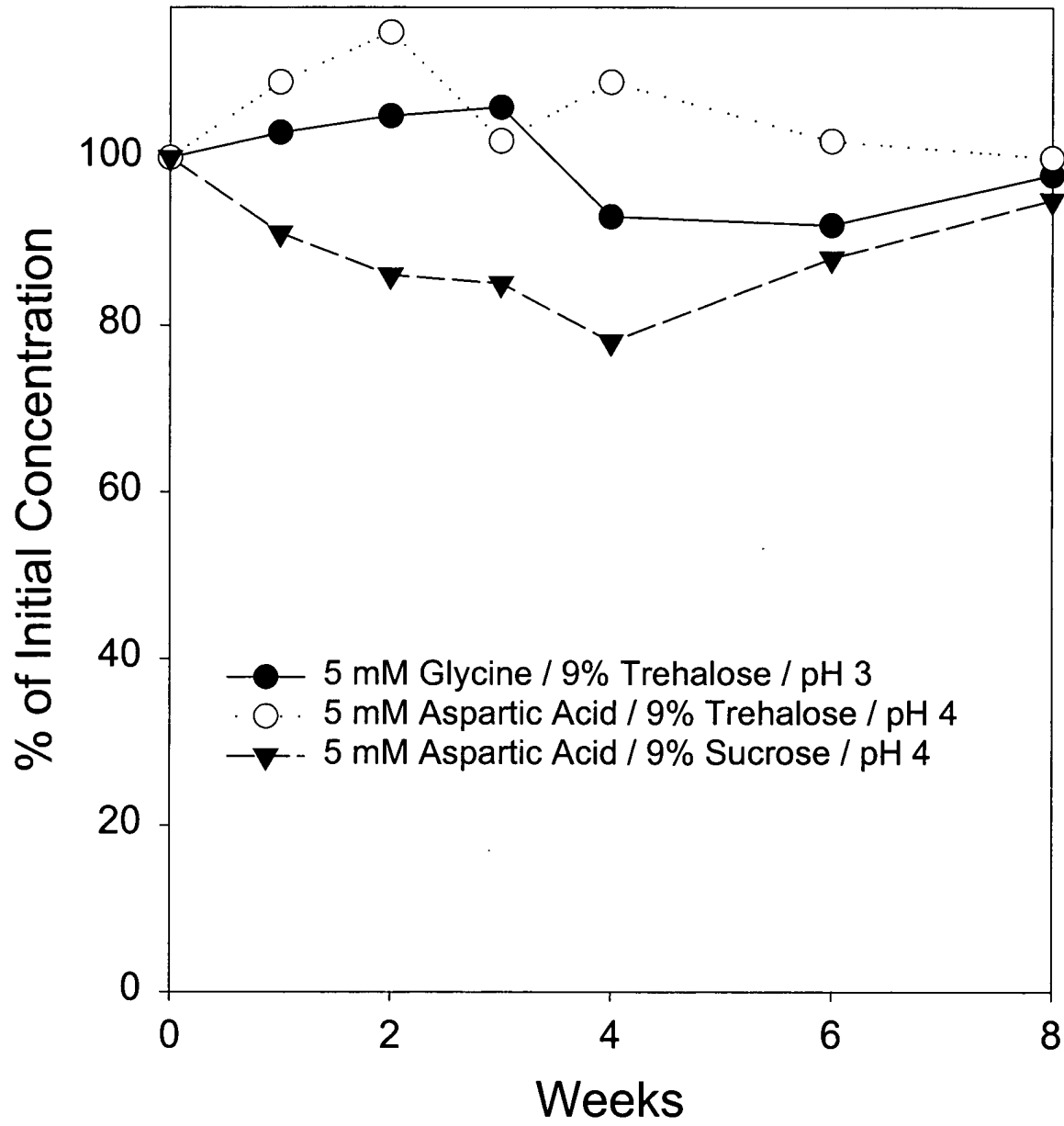


Figure 12

IFN-Beta-1b  
Lyophilized Formulations  
% Main Peak  
RP-HPLC  
40°C

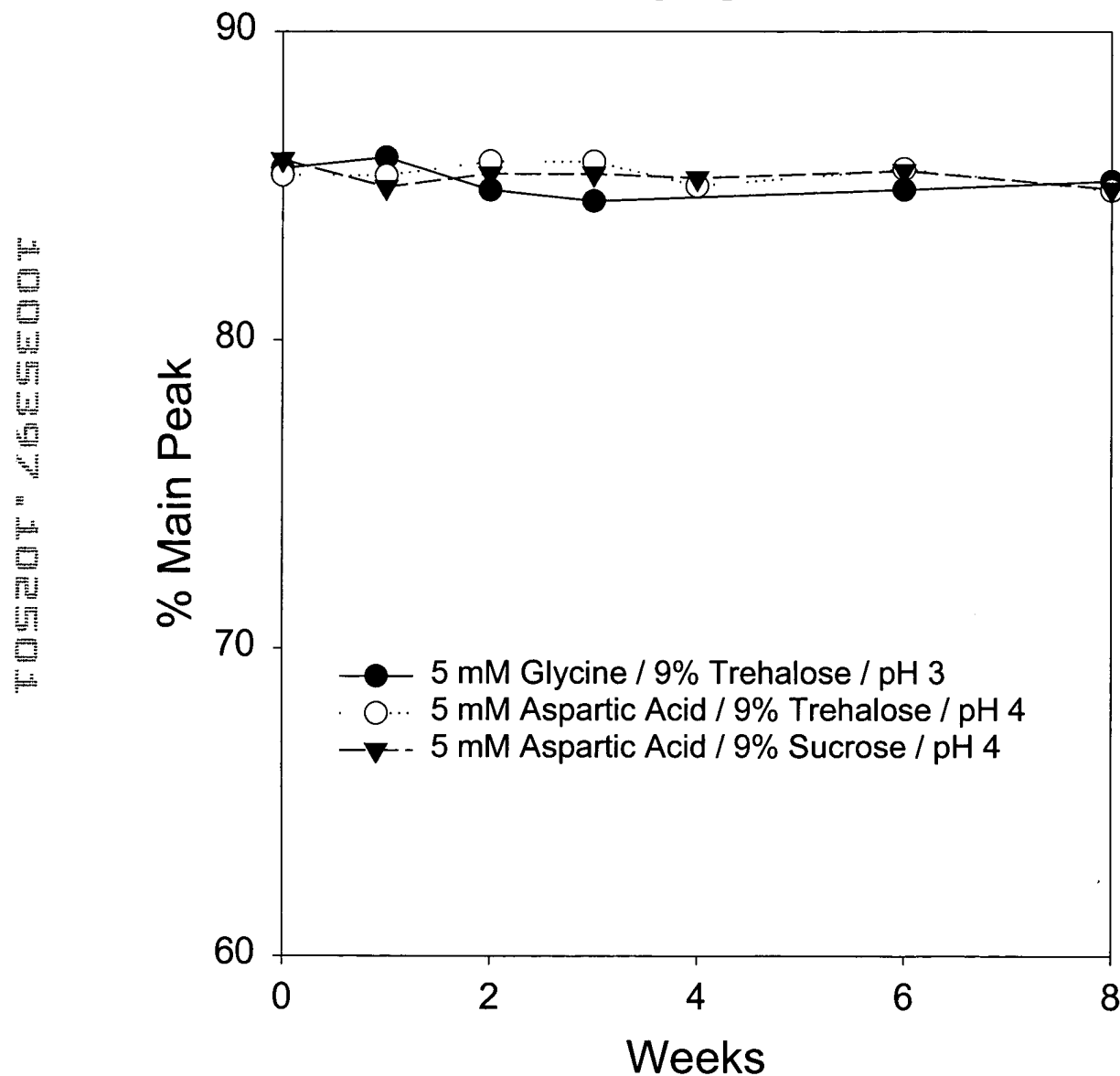


Figure 13

# IFN-Beta-1b Lyophilized Formulations pH 3 & pH 4 % of Initial Concentration UV Spectroscopy

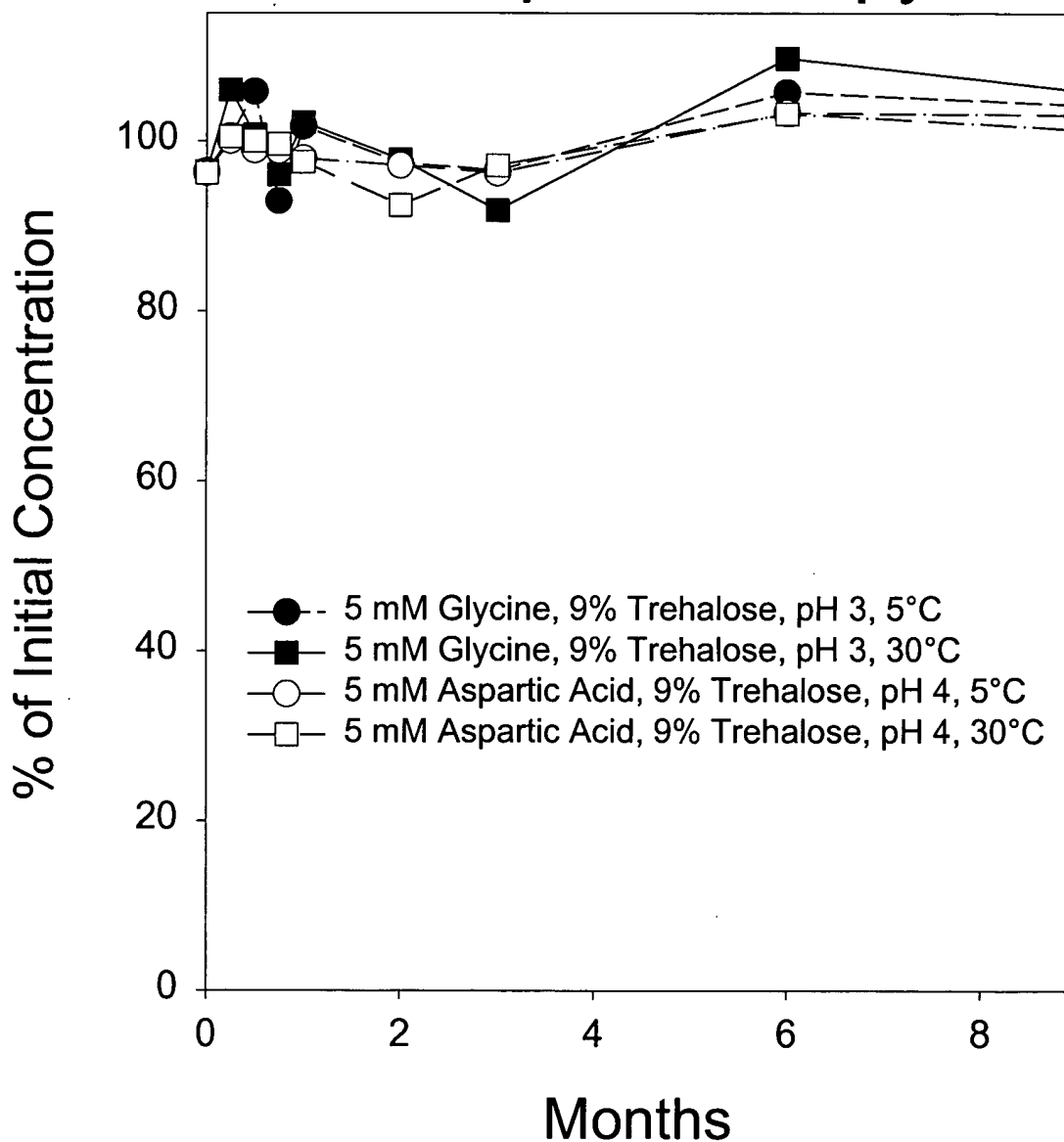


Figure 14

# IFN-Beta-1b

## Lyophilized Formulations

### pH 3 & pH 4

### % Main Peak

### RP-HPLC

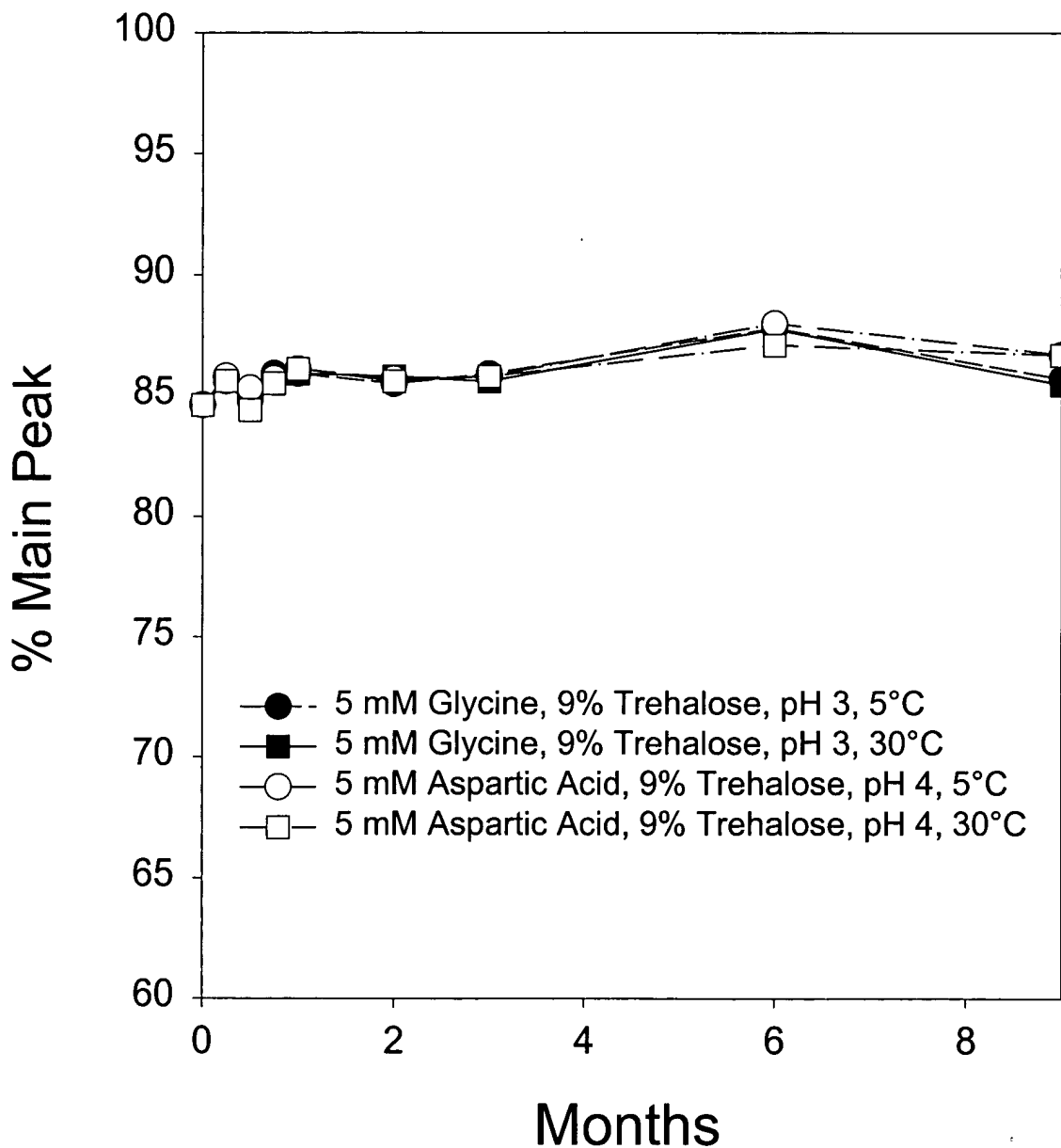


Figure 15

# IFN-Beta-1b

## Liquid Formulations

### % of Initial Concentration

### UV Absorbance

### 30°C

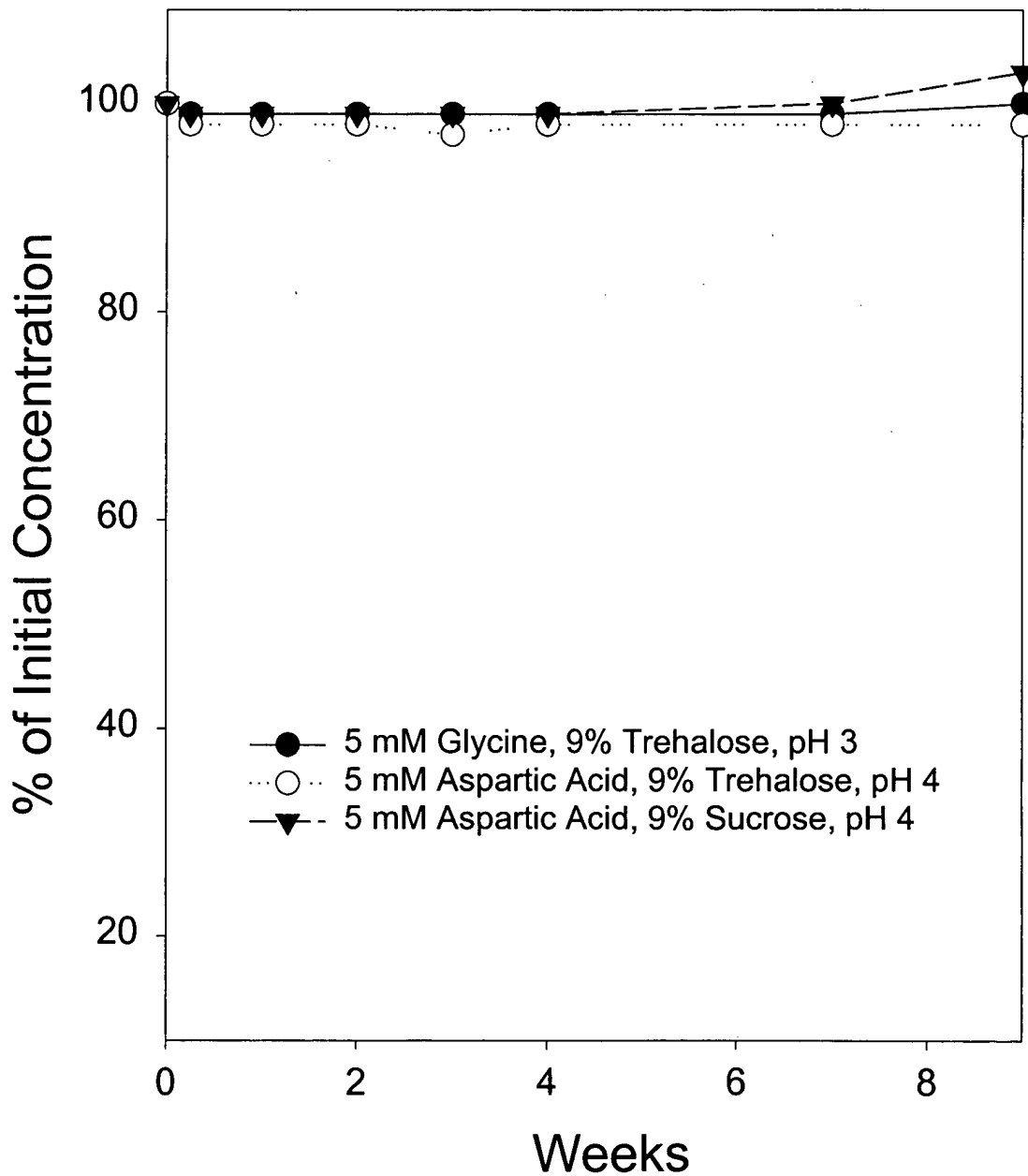


Figure 16



# IFN-Beta-1b Liquid Formulations % Main Peak RP-HPLC 30°C

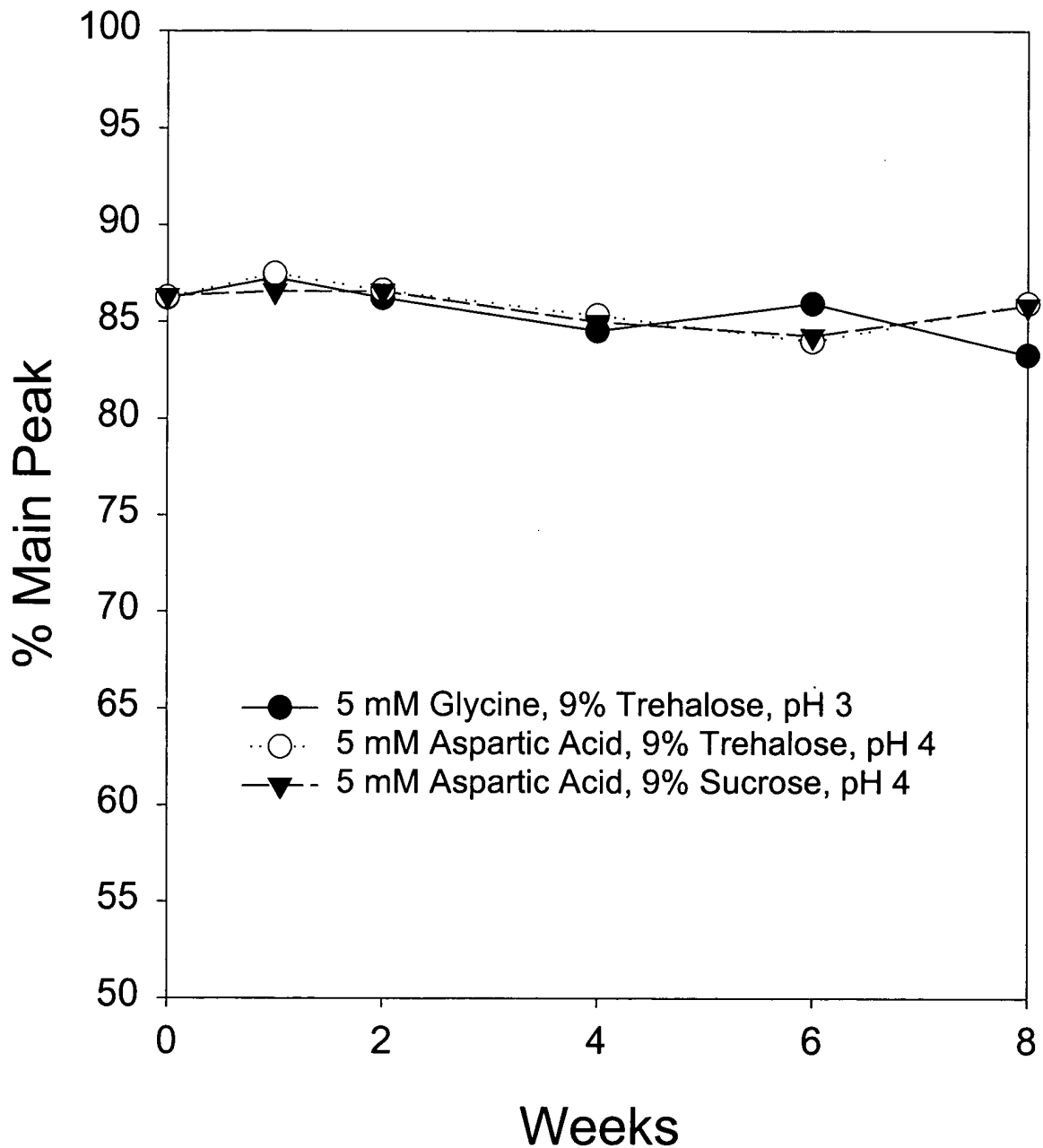


Figure 17

# IFN-Beta-1b

## Liquid Formulations in Vials

### % of Initial Concentration

### UV Spectroscopy

### 5°C

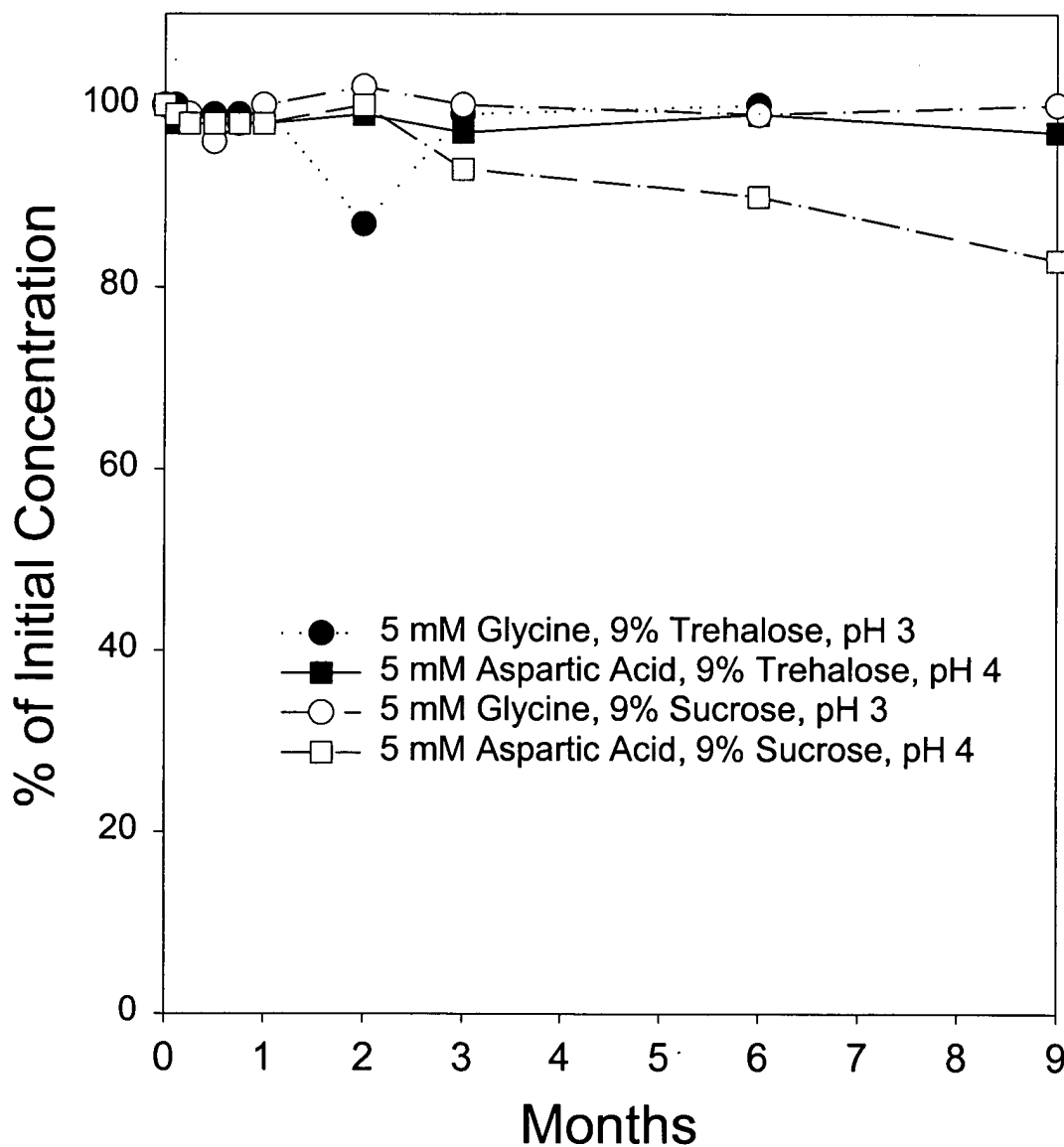


Figure 18

# IFN-Beta-1b

## Liquid Formulations in Vials

### % Main Peak

### RP-HPLC

### 5°C

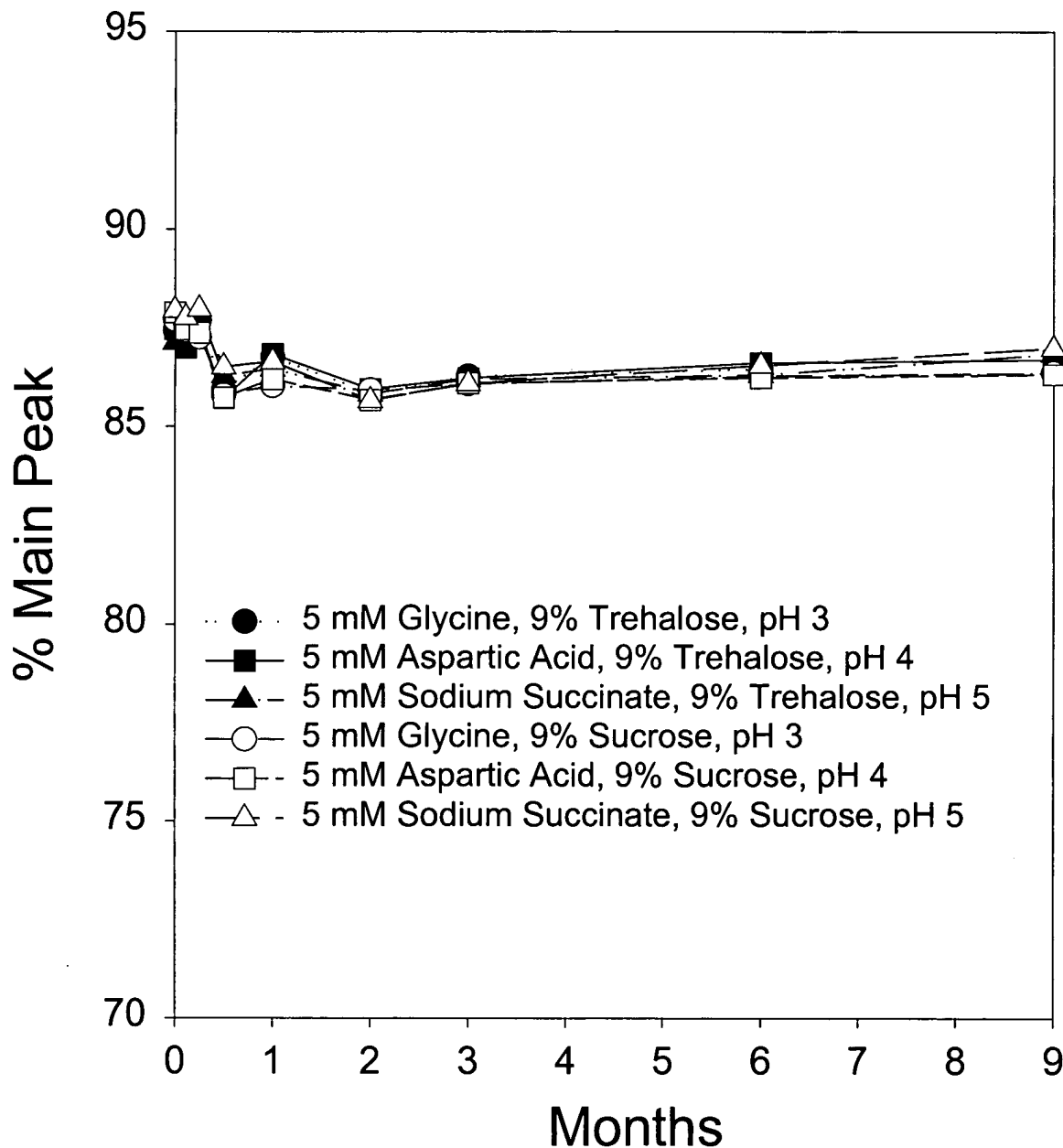


Figure 19

# IFN-Beta-1b

## Liquid Formulations

### Containing Trehalose or Sucrose

#### % of Initial Concentration

#### UV Spectroscopy

#### 30°C

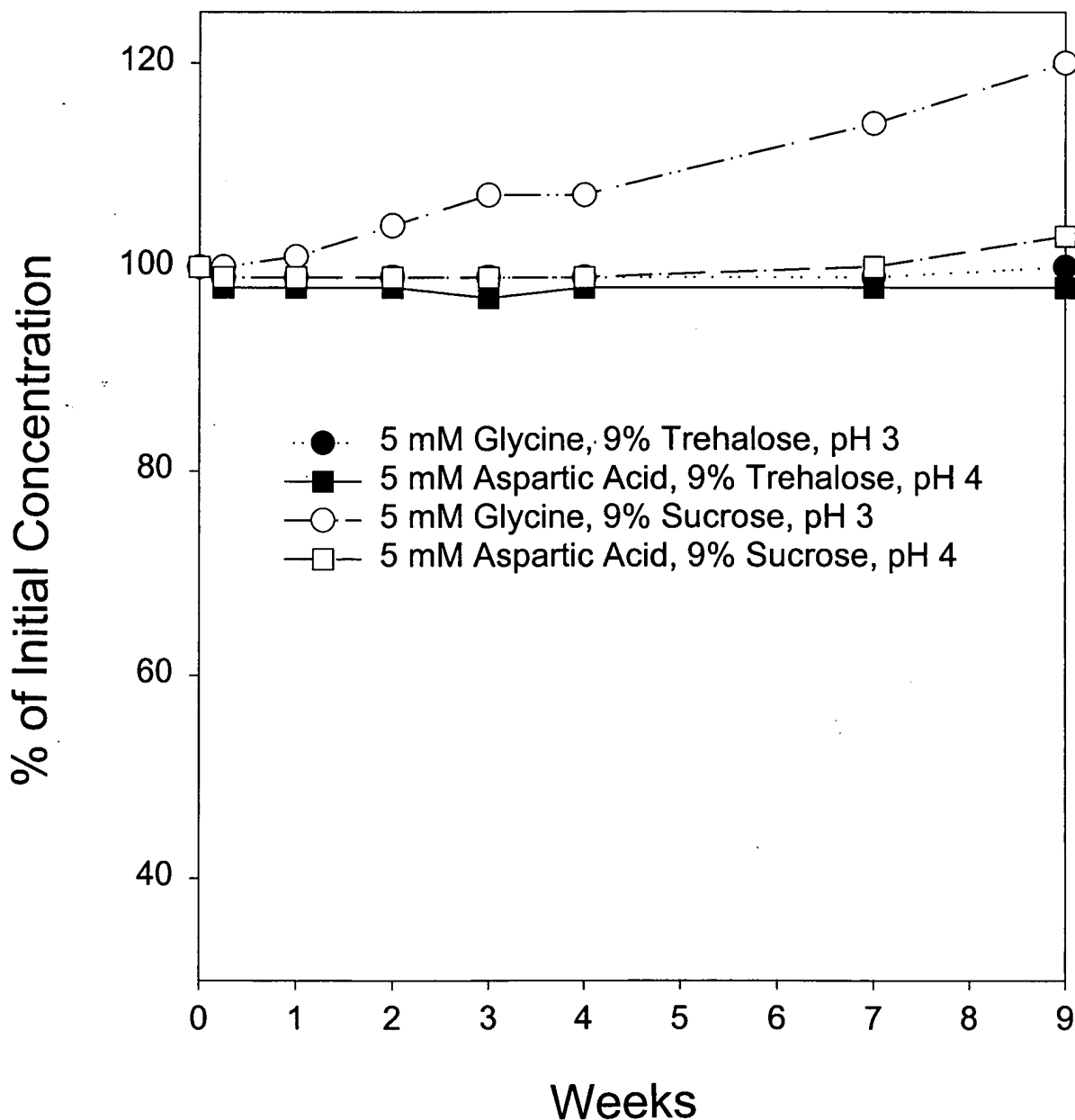


Figure 20

● IFN- $\beta$ -1b  
Lyophilized Formulations  
% of Initial Concentration  
Containing Trehalose or Sucrose  
pH 3 & 4  
40°C

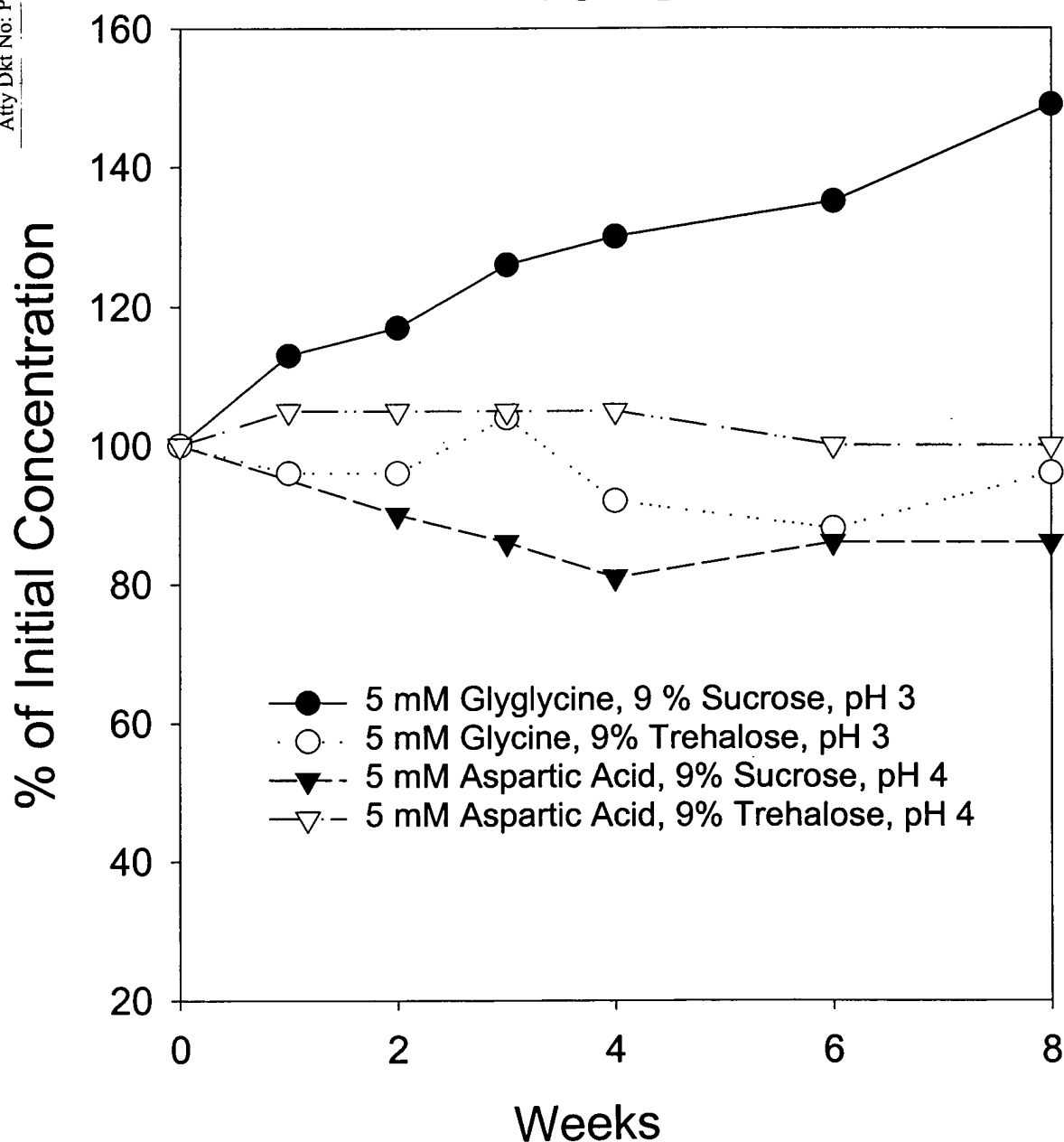


Figure 21

# IFN-Beta-1b

## Liquid Formulations Containing Mannitol

### % of Initial Concentration

### UV Spectroscopy

### 5°C

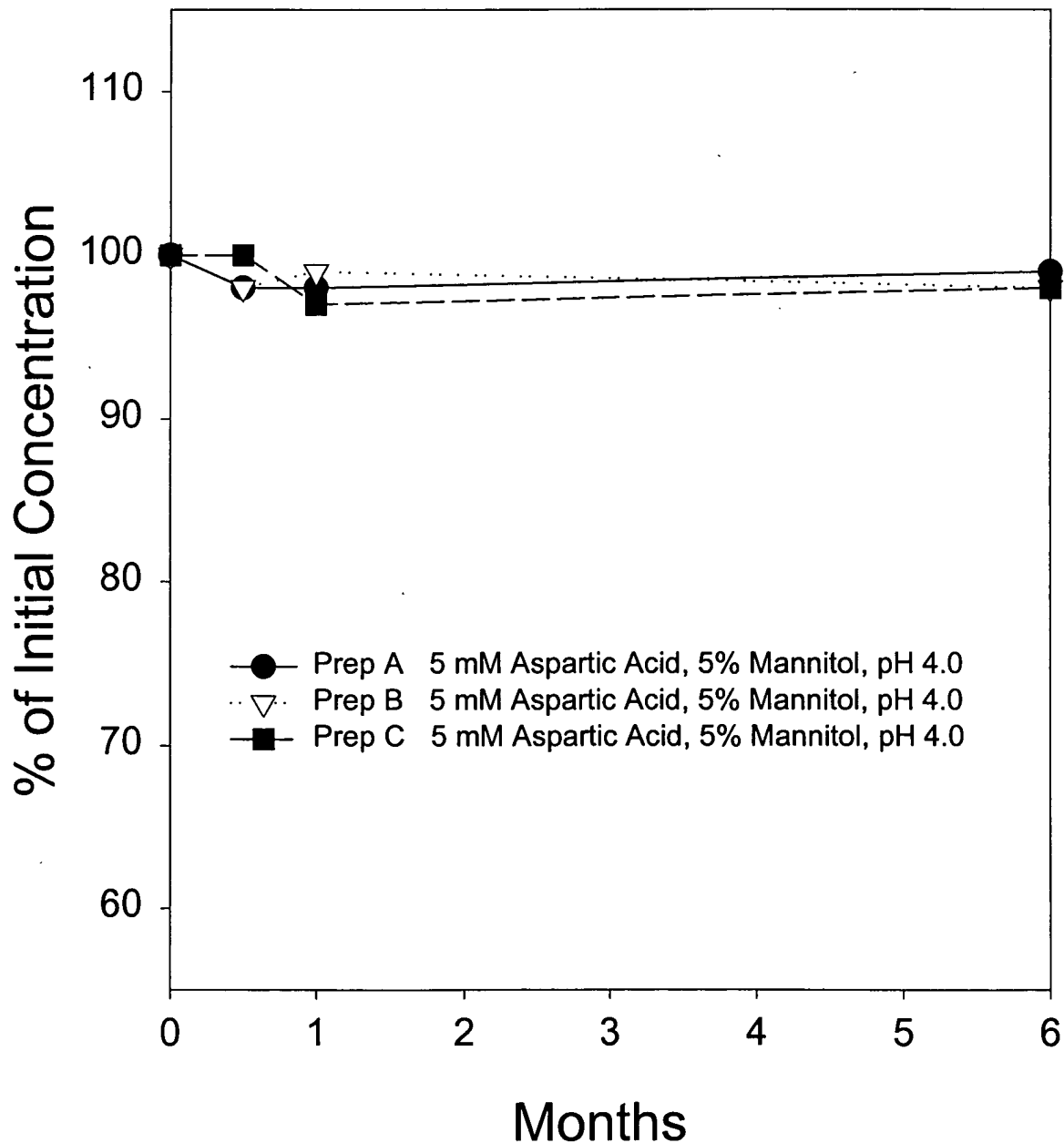


Figure 22

# IFN-Beta-1b

## Liquid Formulations Containing Mannitol

### % Main Peak

### RP-HPLC

### 5°C

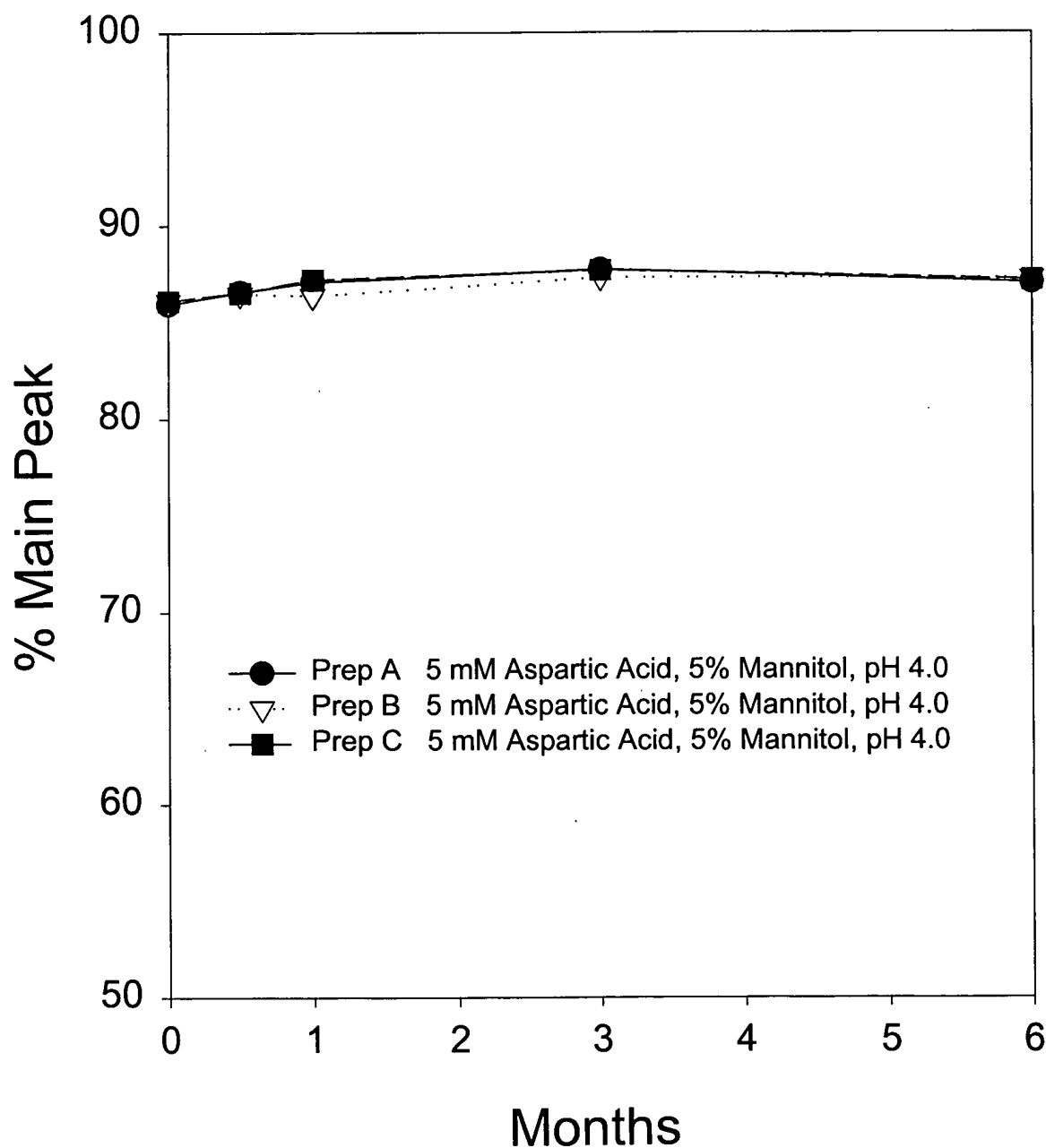


Figure 23